



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,202	10/17/2003	James C. Payne	PAYN.001CIP	6661

40581 7590 02/24/2006

CRAWFORD MAUNU PLLC  
1270 NORTHLAND DRIVE, SUITE 390  
ST. PAUL, MN 55120

EXAMINER
----------

GRANT, ROBERT J

ART UNIT	PAPER NUMBER
----------	--------------

2838

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/688,202	Applicant(s) PAYNE, JAMES C.	
	Examiner Robert Grant	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 12-21-2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

1. Claims 1,2, and 5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Ishii et al (US 6,741,065). Although the conflicting claims are not identical, they are not patentably distinct from each other because Patent number 6,636,014, claim 1, discloses an arrangement for charging an equipment battery, the arrangement comprising a primary battery, and the arrangement is adapted to charge the equipment battery by a power connection from the primary battery to the equipment battery. Claim 1 does not expressly disclose charging a plurality of batteries and a charging circuit that automatically provides charge to each of the plurality of batteries one battery at a time. Ishii discloses charging a plurality of batteries (Figure 4), and a charging circuit that automatically provides charge to each of the plurality of batteries (Column 11, lines 31-41), one battery at a time. It would have been obvious at the time of this invention to modify the apparatus to allow it to provide charge to a plurality of batteries as well as automatically alter the connections from one of the equipment batteries to the next in order to charge all the batteries without having to physically change the connection (Ishii Column 6, lines 15-24).

As to Claim 2, Patent number 6,636,014 in view of Ishii disclose the limitations of claim 1, and further including a wiring harness assembly (6,636,014 figure 1) adapted to permit charging of the plurality of equipment batteries while the batteries are being

towed (6,636,014 discloses charging a single battery while in tow. Ishii teaches the benefits of using and charging multiple battery (Column 6, lines 15-24)).

As to Claim 5, Patent number 6,636,014 in view of Ishii disclose all the limitations of claim 2, and further disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries in response to an indication that said one of the equipment batteries has reached a sufficiently-charged threshold level (Ishii Column 11, lines 31-48).

2. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Ishii in further view of Matsuda (US 5,563,493). As to Claim 3, Patent number 6,636,014 in view of Ishii disclose all the limitations of claim 2. Patent number 6,636,014 in view of Ishii do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a circuit-defined time interval. Matsuda discloses wherein the charging circuit automatically stops charging one of the equipment batteries by using a circuit-defined time interval (column 8, lines 33-37). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate the teachings of Matsuda with the sequential charger apparatus, for the benefit of having an accurate time controlled charging method, and

charging individual batteries for a predetermined period before switching to the next battery.

3. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Ishii in further view of Kan et al. (US 5,168,205). As to Claim 4, Patent number 6,636,014 in view of Ishii disclose all the limitations of claim 2. Patent number 6,636,014 in view of Ishii do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a user-established time interval. Kan discloses wherein the charging circuit automatically stops charging one of the equipment batteries according to a user-established time interval (Column 9, lines 16-20). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine Kan's timer with sequential charging apparatus in order to grant the user control of how long he wants the battery to charger before switching to the next battery.

4. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,636,014 in view of Ishii in further view of Kan and Rogers (US 5,528,148) As to Claim 6, Patent number 6,636,014 in view of Ishii disclose all the limitations of claim 2. Patent number 6,636,014 in view of Ishii do not expressly disclose wherein the charging circuit

automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries at a time that is defined as a function of a user-defined expected travel time. Kan teaches a method of using a user set timer to control the length of charging (Column 9, lines 16-20). Rogers teaches of a battery monitoring and charging system where the estimated time of arrival is part of the information stored in vehicle memory (Column 16, lines 46-51). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teaching of Kan and Rogers to create a timing system that uses an inputted estimated time for arrival, and then use Ishii's sequential charger to take the estimated time till arrive to provide charger to the batteries. This is a similar approach that Ishii already discloses (Column 11, lines 31-48), with the exception that instead of using time to control the charging cycles he uses percentage charge. In a case where the time that power will be allotted to charge the batteries is know, it would be obvious to use timed cycles to sequentially charge the batteries, this would grant a more evenly distributed charge among the batteries by allowing them to charge an equal amount of time.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,2, 5, 7, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (US 5,583,414) in view of Ishii (US 6,741,065).

As to Claim 1, Lawrence discloses an arrangement using a primary battery during an anticipated trailered-equipment towing period for charging a plurality of equipment batteries (Figure 6) configured electrically in and for operation in a trailered equipment (Element 44), the arrangement comprising: a cable (Element 62) for electrically connecting the primary battery (element 12) with the plurality of equipment batteries. Lawrence does not expressly disclose a charging circuit that is adapted to charge the equipment batteries by automatically alternating a power connection from the primary battery to each of the equipment batteries, one battery at a time. Ishii discloses a charging circuit (figure 4) that is adapted to charge the equipment batteries by automatically alternating a power connection to each of the equipment batteries, and distributing charge to each of the equipment batteries, one battery at a time (Column 11, lines 31-48). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Ishii's sequential charging with Lawrence's system for charging a battery while in tow, by putting Ishii's sequential charger in control of the charging of the batteries. This would have the benefit of greater control of the charging of the batteries, as well as allowing individual batteries to charge faster.

As to Claim 2, Lawrence in view of Ishii disclose the limitations of claim 1, and further including a wiring harness assembly (Lawrence Figure 6) that is adapted to

permit charging of the plurality of equipment batteries while the batteries are being towed (Lawrence Figure 1), and that includes the cable.

As to Claim 5, Lawrence in view of Ishii disclose all the limitations of claim 2, and further disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries in response to an indication that said one of the equipment batteries has reached a sufficiently-charged threshold level (Ishii Column 11, lines 31-48).

As to claim 7, Lawrence discloses A vehicle-trailer arrangement for charging during an anticipated trailered-equipment towing period a plurality of equipment batteries configured electrically in and for operation in a trailered equipment, the arrangement comprising (Figure 1): a vehicle battery (Element 12). Lawrence does not expressly disclose a charging means for automatically charging the equipment batteries using an alternating power connection from the vehicle battery to each of the equipment batteries, one battery at a time. Ishii discloses a charging circuit (figure 4) that is adapted to charge the equipment batteries by automatically alternating a power connection to each of the equipment batteries, and therein distributing charge to each of the equipment batteries, one battery at a time (Column 11, lines 31-48). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Ishii's sequential charging with Lawrence's system for charging a battery while in tow, by putting Ishii's sequential charger in control of the charging of the batteries. This would have the benefit of greater control of the charging of the batteries, as well as allowing individual batteries to charge faster.



As To claim 8. Lawrence discloses a vehicle-trailer arrangement (figure 1) using a primary battery (Element 12) located in a towing vehicle adapted to tow the trailered equipment during an anticipated trailered-equipment towing period, the arrangement for charging a plurality of trailered equipment batteries in a trailered vehicle configured electrically in and for operation of at least one accessory adapted to be operated in the trailered equipment, the arrangement comprising: an electrical harness (Figure 6). Lawrence does not expressly disclose a charging circuit adapted to use the electrical harness to charge the trailered equipment batteries by automatically alternating a power connection from the primary battery to each of the trailered equipment batteries, one battery at a time. Ishii discloses a charging circuit (figure 4) that is adapted to charge the equipment batteries by automatically alternating a power connection to each of the equipment batteries and therein distributing charge to each of the equipment batteries, one battery at a time (Column 11, lines 31-48). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Ishii's sequential charging with Lawrence's system for charging a battery while in tow, by putting Ishii's sequential charger in control of the charging of the batteries. This would have the benefit of greater control of the charging of the batteries, as well as allowing individual batteries to charge faster.

As to Claim 12, Lawrence in view of Ishii disclose the limitations of claim 1, and Ishii further discloses wherein the charging circuit is adapted to charge three equipment batteries, one at a time (Figure 4).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Ishii as applied to claim 2 above, and further in view of Matsuda et al. (5,563,493).

As to Claim 3, Lawrence in view of Ishii disclose all the limitations of claim 2. Lawrence in view of Ishii do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a circuit-defined time interval. Matsuda discloses wherein the charging circuit automatically stops charging one of the equipment batteries by using a circuit-defined time interval (column 8, lines 33-37). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate the teachings of Matsuda with the sequential charger of Lawrence in view of Ishii, for the benefit of having an accurate time controlled charging method, and charging individual batteries for a predetermined period before switching to the next battery.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Ishii as applied to claim 2 above, and further in view of Kan et al. (5,168,205).

As to Claim 4, Lawrence in view of Ishii disclose all the limitations of claim 2. Lawrence in view of Ishii do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries according to a user-established time interval. Kan discloses wherein the charging circuit automatically stops charging one of the

Art Unit: 2838

equipment batteries according to a user-established time interval (Column 9, lines 16-20). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine Kan's timer with Lawrence in view of Ishii's sequential charger in order to grant the user control of how long he wants the battery to charge before switching to the next battery.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Ishii as applied to claim 2 above, and further in view of Kan and Rogers (US 5,528,148).

As to Claim 6, Lawrence in view of Ishii disclose all the limitations of claim 2. Lawrence in view of Ishii do not expressly disclose wherein the charging circuit automatically stops charging one of the equipment batteries and begins charging another of the equipment batteries at a time that is defined as a function of a user-defined expected travel time. Kan teaches a method of using a user set timer to control the length of charging (Column 9, lines 16-20). Rogers teaches of a battery monitoring and charging system where the estimated time of arrival is part of the information stored in vehicle memory (Column 16, lines 46-51). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teaching of Kan and Rogers to create a timing system that uses an inputted estimated time for arrival, and then use Ishii's sequential charger to take the estimated time till arrive to provide charger to the batteries. This is a similar approach that Ishii already discloses (Column 11, lines 31-48), with the exception that instead of using time to control the

charging cycles he uses percentage charge. In a case where the time that power will be allotted to charge the batteries is know, it would be obvious to use timed cycles to sequentially charge the batteries, this would grant a more evenly distributed charge among the batteries by allowing them to charge an equal amount of time.

10. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (US 5,583,414) in view of Ishii (US 6,741,065) in further view of Nagai et al. (US 6291965).

As to Claim 9, Lawrence in view of Ishii disclose all the limitation of claim 8. Lawrence in view of Ishii do not expressly disclose a communication link. Nagai discloses a data communications link adapted to provide feedback to the charging circuit (Figure 13, element 127). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Nagai's communication link, with the charger of Lawrence in view of Ishii, in order to provide monitoring and control over various charging parameters.

As to Claim 10 Lawrence in view of Ishii disclose all the limitation of claim 8. Lawrence in view of Ishii disclose a charger which stops charging one of the equipment batteries and begins charging another of the equipment batteries in response to one of the equipment batteries has reached a sufficiently-charged threshold level. Lawrence in view of Ishii do not expressly disclose a communication link which transmits a sufficiently-charged signal of a battery. Nagai discloses a communication link adapted

to provide feedback to the charging circuit (Figure 13, element 127), and wherein the charging circuit automatically stops charging (Figure 17, element S10) one of the equipment batteries. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Nagai's communication link and signal, with the charger of Lawrence in view of Ishii in order to monitor and control the charging of the batteries.

As to Claim 11 Lawrence in view of Ishii disclose all the limitation of claim 8. Lawrence in view of Ishii disclose a charger which stops charging one of the equipment batteries and begins charging another of the equipment batteries. Lawrence in view of Ishii do not expressly disclose a feedback means which transmits feedback data of a battery. Nagai discloses a feedback means adapted to provide feedback to the charging circuit (Figure 13, element 127), and wherein the charging circuit automatically stops charging (Figure 17, element S10) one of the equipment batteries. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the teachings of Nagai's communication link and signal, with the charger of Lawrence in view of Ishii in order to monitor and control the charging of the batteries.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Ishii in further view of Feldstein (US 5,646,504).

As to Claim 13, Lawrence in view of Ishii disclose the limitations of claim 12, which claim 13 is dependent upon. Lawrence in view of Ishii do not expressly discloses wherein at least two of the three equipment batteries are arranged in series. Feldstein

Art Unit: 2838

discloses a charger wherein three batteries are arranged in series (column 7, lines 21-23). It would have been obvious to a person having ordinary skill in the art at the time of this invention to arrange the batteries in a series connection such as Feldstein has, so as to allow an efficient method of charging a string of batteries.

### ***Terminal Disclaimer***

The terminal disclaimer was not signed.

### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2838

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG

  
KARL EASTHOM  
SUPERVISORY PATENT EXAMINER